PCM2000
Configuration Guide

BOGEN®

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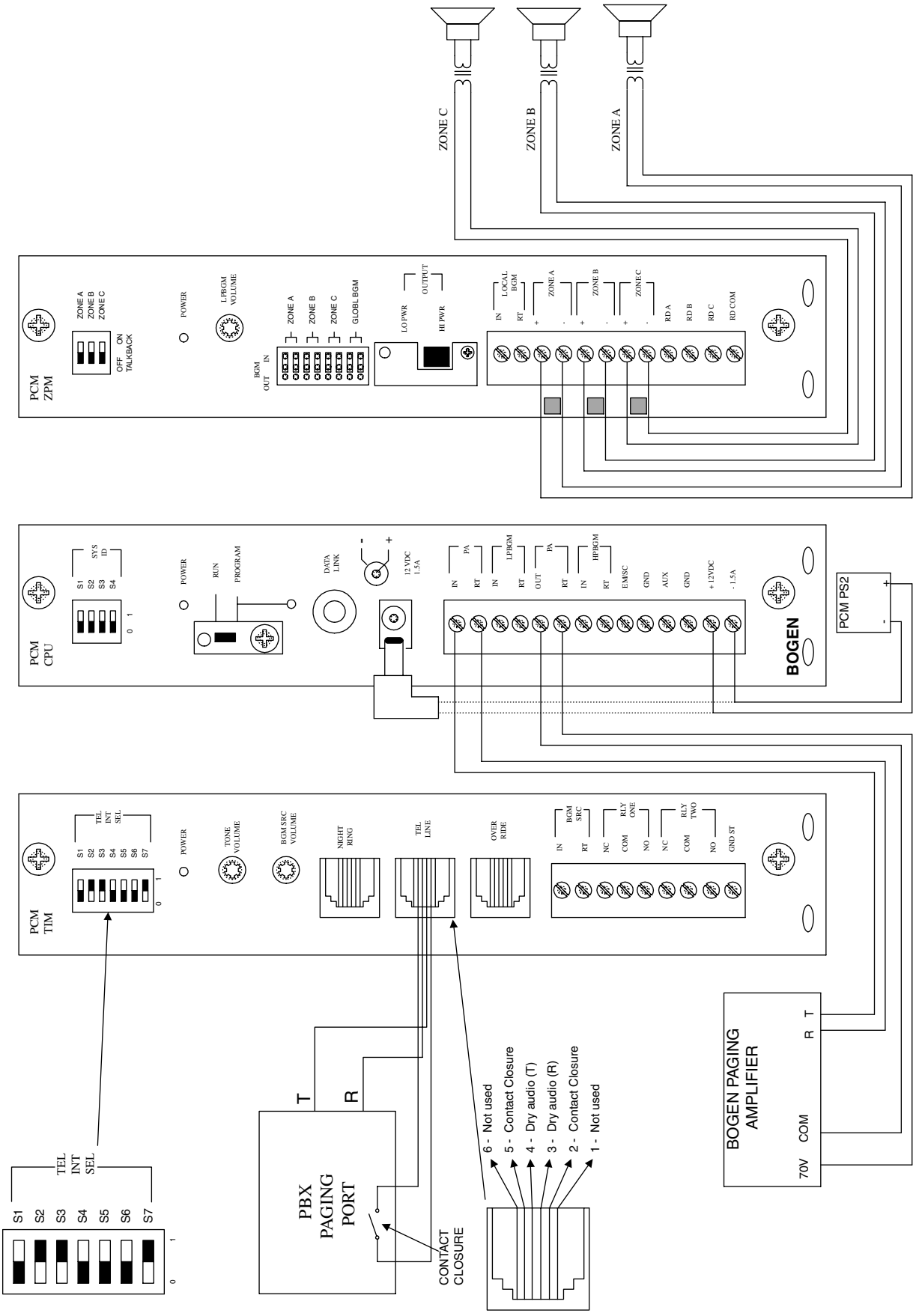
SECTION I: APPLICATION CONFIGURATIONS

SETUP FOR CONFIGURATION 1: PAGE PORT CONTACT CLOSURE - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS



CONFIGURATION 1:
PAGE PORT CONTACT CLOSURE - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS

In this configuration, the PCM unit responds to a contact closure on pins 2 & 5 of the TEL LINE jack on the PCMTIM module shorting the +5V source to its ground. When the closure is removed, the page ends. Audio is provided to the system through a separate pair of leads on pins 3 & 4 of the TEL LINE jack on the PCMTIM module. Pins 1 & 6 are not used in this configuration.

Note: The audio pair (page port) must pass DTMF in order to select a zone.

The required setup includes PCMTIM - PCMCPU - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU and to PCMZPM (see Illustration on page 38)

- Plug the 6-pin power connector from the PCMCPU module to the PCMTIM module jack (J2). Be sure that the locking ridge faces header wall. (Green wire to the top.)
- Plug the 26-pin ribbon cable from the PCMCPU module to the PCMTIM module 26-pin connector (J1). Be sure to align the polarizing tab in slot. (Pin 1 red stripe to the top.)
- Place the modules together and dress the connector cables away from the sheet metal so they will not get pinched.
- Push the two units together while aligning the locking tabs in the PCMTIM module to the locking slots in the PCMCPU module. Slide the two units until the faces of both units are even.
- Secure the two units together by tightening a screw into the screw clamp tab in the back of the PCMTIM.
- Follow the same steps to add the PCMZPM module.

Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting Paging Port/Contact Closure from the Telephone System to the PCMTIM Module

- Take the page port audio pair from the telephone system and wire it to the RJ11 TEL-LINE jack to pins 3 & 4 (red and green); and the contact closure pair to pins 2 & 5 (black and yellow).
- Use a 4- or 6-pin modular cord to connect the RJ11 to the TEL-LINE input on the PCMTIM module.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module for Page Port Contact Closure configuration: switches 2, 3 & 7 ON (to the right) and switches 1, 4, 5 & 6 OFF (to the left).
- Set the SYS-ID DIP switches on the PCMCPU module to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the Talk Back DIP switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the page port from the phone system and verify access tones (double beep) in handset.
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Locate the terminals on the PCMCPU module labeled PA IN/RT and wire to the TIP and Ring (T & R) input on the Bogen paging amplifier (either TPU-Series, GS-Series or Classic Series.)
- Locate the terminals on the PCMCPU module labeled PA OUT/RT and wire to COMMON and either the 25 or 70V output on the paging amplifier.

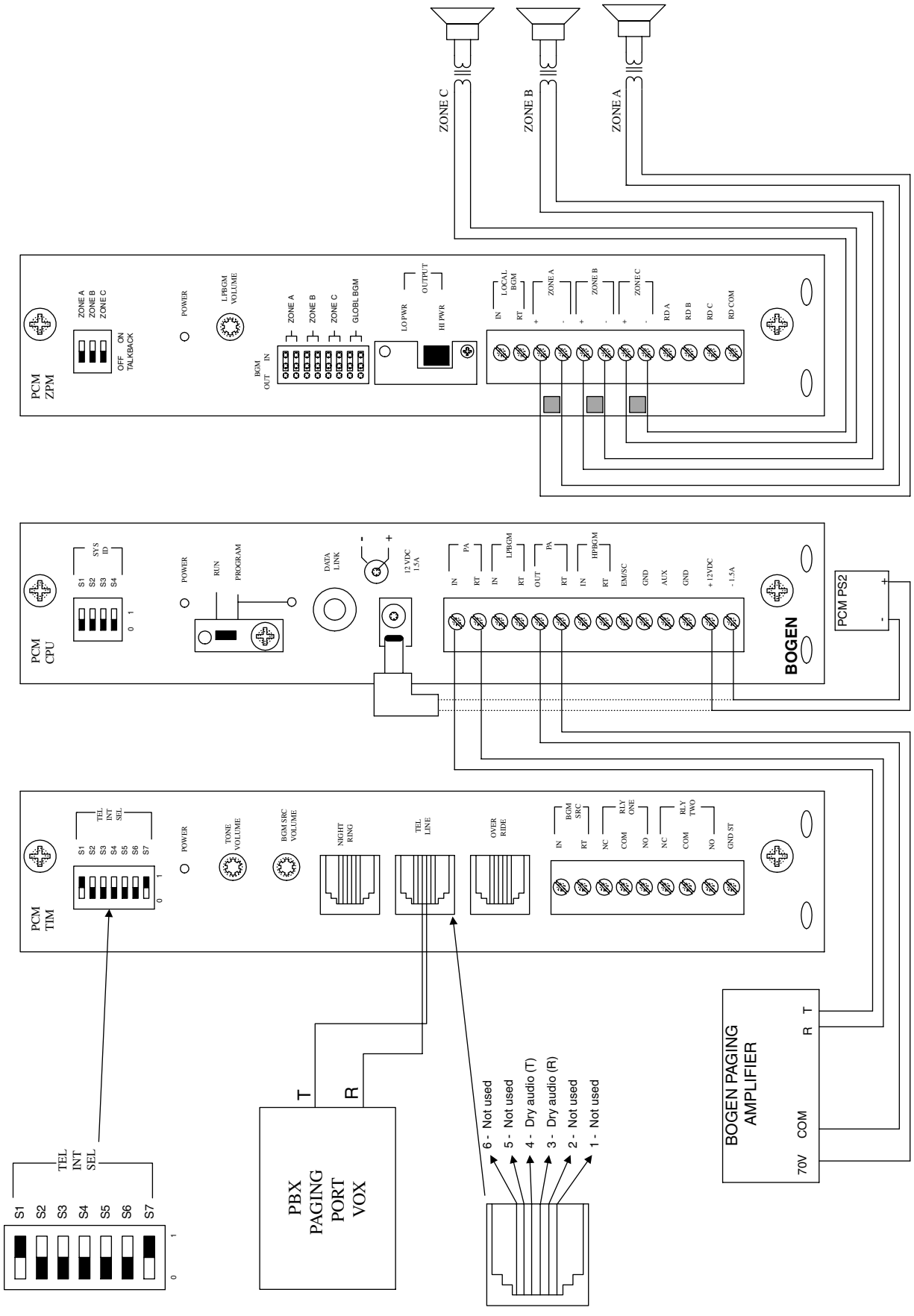
STEP 6: Connecting 25/70V AC Speakers

- Locate the terminals on the PCMZPM module labeled ZONE A. These terminals have two connections marked + and -. Wire your speakers for ZONE ONE to these terminals. Observe polarity (-) to common (+) to selected tap setting.
- Follow the same procedure for the terminals labeled ZONE B for ZONE TWO, and the terminals labeled ZONE C for ZONE THREE.

STEP 7: Testing your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals, observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC, 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the paging from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio).
- Follow the same steps for ZONES TWO (02) and THREE (03).
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 2: PAGE PORT VOX CIRCUIT - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS



CONFIGURATION 2:

PAGE PORT VOX CIRCUIT - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS

This configuration is for Page Ports without Contact Closures. A dry audio pair connected to pins 3 & 4 of the TEL LINE jack on the PCMTIM module is used to detect audio and activate the system. Paging ends when the VOX timer or default timer times out. Pins 1, 2, 5 & 6 are not used in this configuration.

Note: The audio pair (page port) must pass DTMF in order to select a zone.

The required setup includes: PCMTIM - PCMCPU - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU and to PCMZPM

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting Paging Port/VOX from the Telephone System to the PCMTIM Module

- Take the page port (VOX) audio pair from the telephone system and wire it to the RJ11 TEL-LINE jack in the PCMTIM module to pins 3 & 4 (red and green).
- Use a 4- or 6-pin modular cord to connect the RJ11 to the TEL-LINE input on the PCMTIM module.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module for Page Port VOX configuration: switches 1 & 7 ON (to the right) and switches 2, 3, 4, 5 & 6 OFF (to the left).
- Set the SYS-ID DIP switches on the PCMCPU module to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the Talk Back DIP switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Follow the same procedure described previously on page 5, step 4.

STEP 5: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5, step 5.

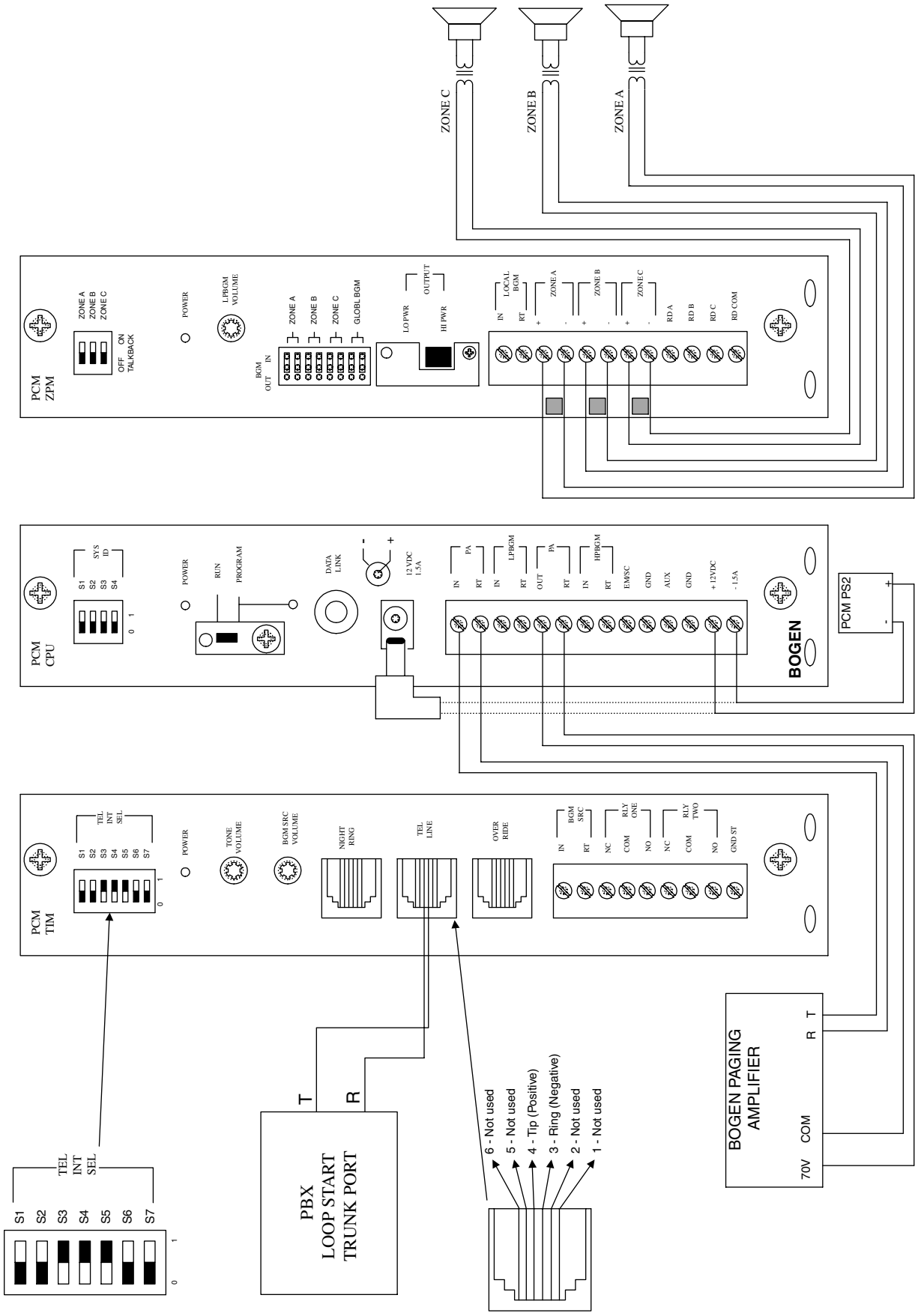
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Follow the same procedure described previously on page 5, step 7.

SETUP FOR CONFIGURATION 3: LOOP START TRUNK - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS



CONFIGURATION 3:

LOOP START TRUNK - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS

In this configuration, the PCM unit supplies a 48V talk battery and loop current detection from pins 3 & 4 of the TEL LINE jack on the PCMTIM module to the loop start trunk in the telephone system. There are two modes of operation for loop start trunk.

(1) When the unit detects a loop resistance between TIP and RING, it activates. When the loop opens, the page ends. Pins 1, 2, 5 & 6 are not used in this configuration. **Note: Default and VOX timers are not used in this mode.**

(2) The unit will operate as in mode one, except it will also provide a one-second hook flash after the expiration of the VOX and/or Default timers. Operation in this mode will enable the unit to automatically disconnect itself from the loop start trunk of the PBX. This will prevent the paging system from being locked up indefinitely in the event a telephone is accidentally left off hook after a page has been completed. The feature codes are 014 to inhibit and 015 to enable this feature. The default feature code is 014 (OFF).

The required setup includes PCMTIM - PCMCPU - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU and to PCMZPM

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting Loop Start Trunk from the Telephone System to the PCMTIM Module

- Take the loop start trunk pair from the telephone system and wire it to the RJ11 TEL-LINE jack in the PCMTIM module to pins 3 and 4 (red and green).
- Use a 4 or 6-pin modular cord to connect the RJ11 to the TEL-LINE input on the PCMTIM module.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module for Loop Start Trunk configuration: switches 3, 4 & 5 ON (to the right) and switches 1, 2, 6 & 7 OFF (to the left).
- Set the SYS-ID DIP switches on the PCMCPU module to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the Talk Back DIP switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Power LEDs should be lit on each module.
- Access the Loop Start Trunk from the phone system and verify access tones (double beep).
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5, step 5.

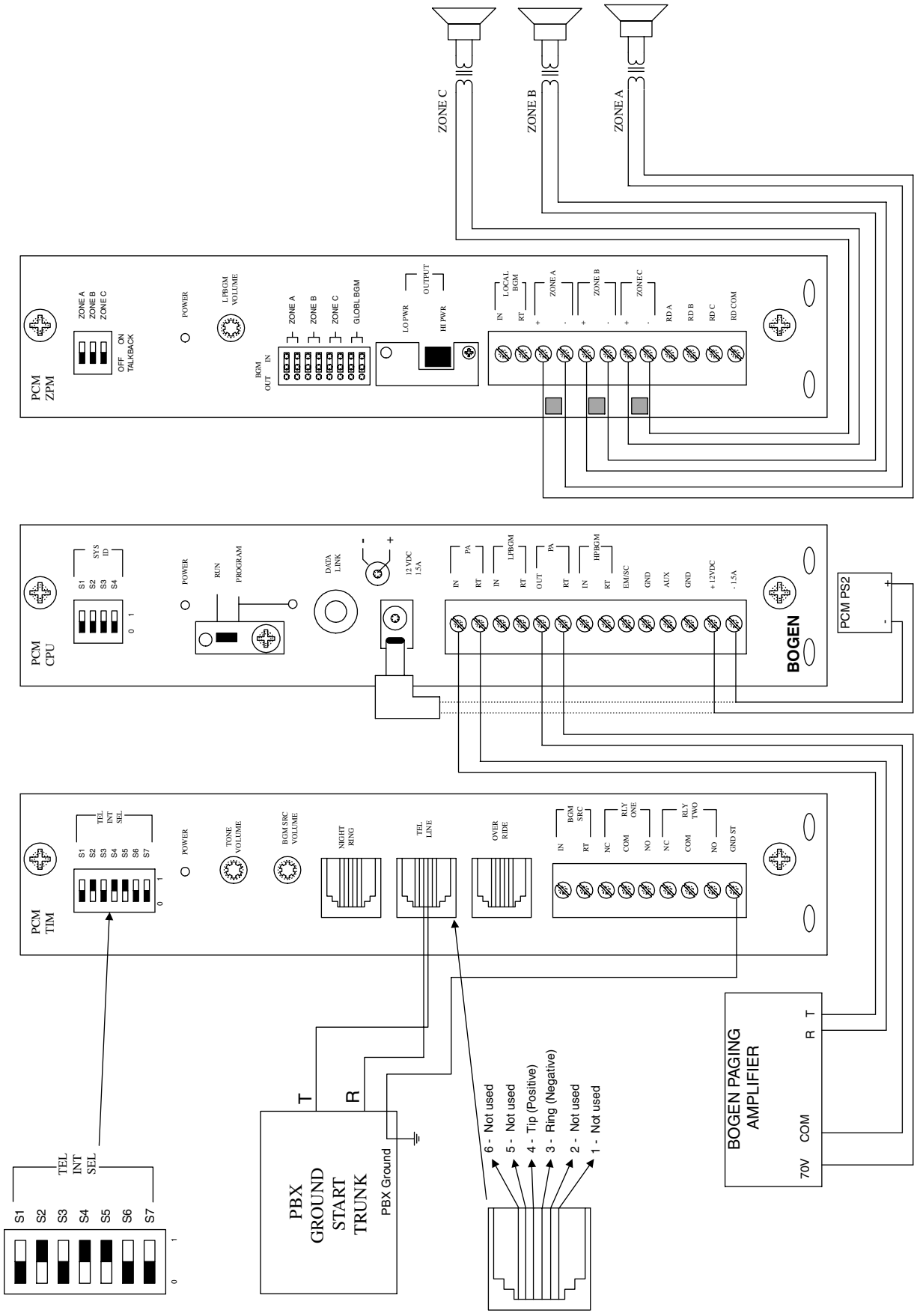
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the Loop Start Trunk from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio)
- Follow the same steps for ZONES TWO (02) and THREE (03).
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 4: GROUND START TRUNK - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS



CONFIGURATION 4:

GROUND START TRUNK - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS

In this configuration, the PCM unit supplies a 48V talk battery and loop current detection from pins 3 & 4 of the TEL LINE jack on the PCMTIM module to the ground start trunk in the telephone system. There are two modes of operation for ground start trunk.

(1) When the ground start trunk grounds Ring, the unit responds by closing the connection to Tip, which completes the access procedure. When the loop is opened, the page ends. Pins 1, 2, 5 & 6 are not used in this configuration. **Note: Default and VOX timers are not used in this mode.**

(2) The unit will operate as in mode one, except it will also provide a one-second hook flash after the expiration of the VOX and/or Default timers. Operation in this mode will enable the unit to automatically disconnect itself from the ground start trunk of the PBX. This will prevent the paging system from being locked up indefinitely in the event a telephone is accidentally left off hook after a page has been completed. The feature codes are 014 to inhibit and 015 to enable this feature. The default feature code is 014 (OFF).

The required setup includes PCMTIM - PCMCPU - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU and to PCMZPM

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting the Ground Start Trunk from the Telephone System to the PCMTIM Module

- Take the ground start trunk pair from the telephone system and wire it to the RJ11 TEL-LINE jack in the PCMTIM module to pins 3 and 4 (red and green).
- Use a 4 or 6-pin modular cord to connect the RJ11 to the TEL-LINE input on the PCMTIM module.
- Use a 24-gauge solid wire to connect the GND ST terminal on the PCMTIM module to the PBX ground. This is typically the AC ground for the PBX system.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module for Ground Start Trunk configuration: switches 2, 4 & 5 ON (to the right) and switches 1, 3, 6 & 7 OFF (to the left).
- Set the SYS-ID DIP switches on the PCMCPU module to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the Talk Back DIP switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the Ground Start Trunk from the phone system and verify access tones (double beep).
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5, step 5.

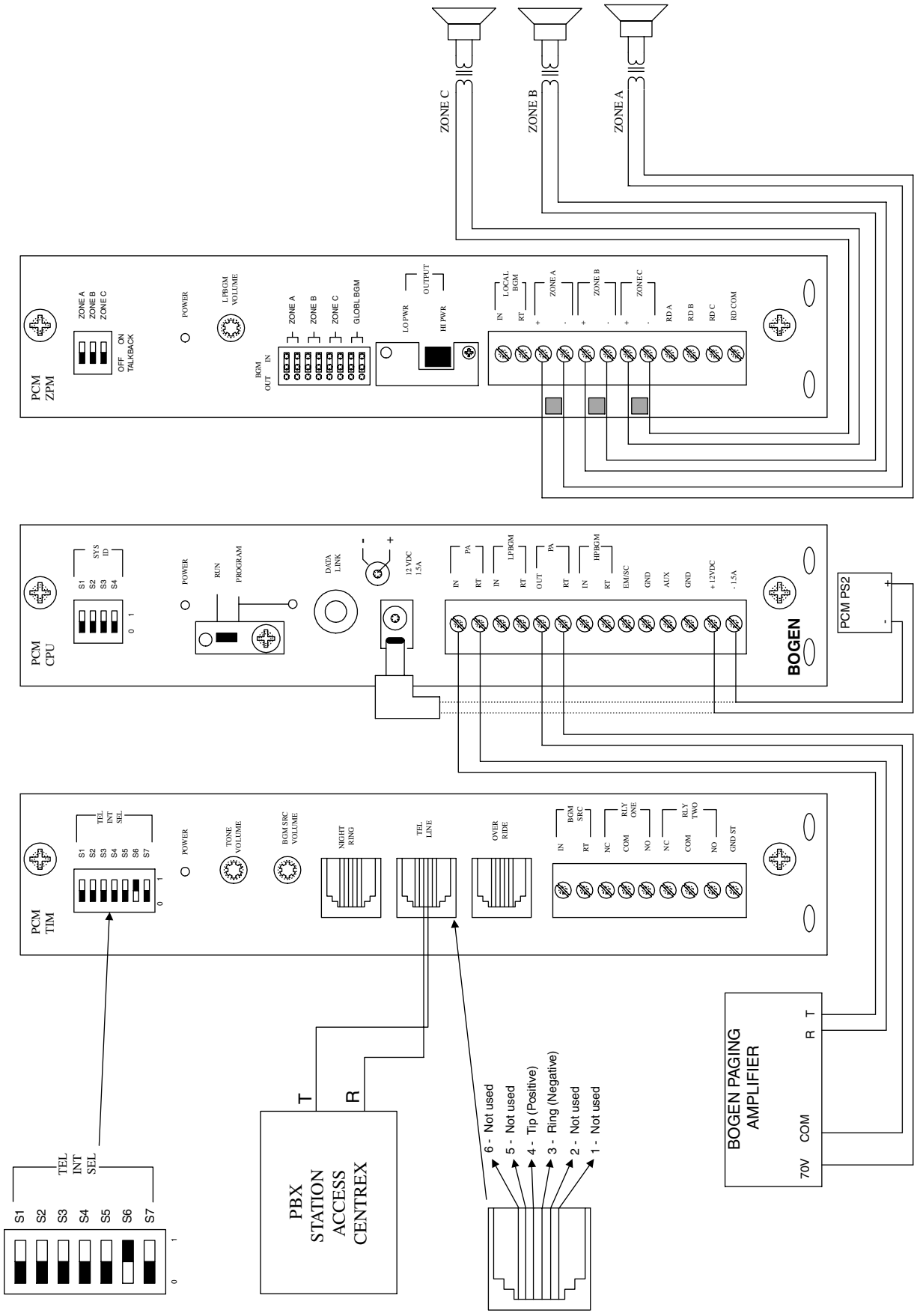
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the Ground Start Trunk from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio).
- Follow the same steps for ZONES TWO (02) and THREE (03).
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 5: STATION LEVEL/CENTREX - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS



CONFIGURATION 5:

STATION LEVEL/CENTREX - 3-ZONE - ONE-WAY PAGING - SINGLE AMPLIFIER - 25/70V AC SPEAKERS

In this configuration, the PCM unit responds to a 90V AC 20Hz ringing signal in pins 3 & 4 of the TEL LINE jack on the PCMTIM module and answers after the first full ring. As soon as it answers, the default timer is started. The default timer determines the maximum length of any page. When a paging zone is selected, the VOX timer (if enabled) is started. This VOX timer repeatedly resets as long as audio is detected on the line. If no audio is detected within the VOX time period, the page will end. If audio continues to be detected, the default timer will control the page length. Pins 1, 2, 5 & 6 are not used in this configuration.

Note: In this configuration, the unit will also respond to CPC pulses (interruption of loop current) disconnecting the line.

The required setup includes PCMTIM -PCMCPU - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU and to PCMZPM

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting the Station Level/Centrex from the Telephone System to the PCMTIM Module

- Take the Station Level/Centrex pair from the telephone system and wire it to the RJ11 TEL-LINE jack in the PCMTIM module to pins 3 and 4 (red and green).
- Use a 4 or 6-pin modular cord to connect the RJ11 to the TEL-LINE input on the PCMTIM module.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module for Station Level/Centrex configuration: switch 6 ON (to the right) and switches 1, 2, 3, 4, 5 & 7 OFF (to the left).
- Set the SYS-ID DIP switches on the PCMCPU module to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the Talk Back DIP switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the Station Level/Centrex line from the phone system and verify access tones (double beep).
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5, step 5.

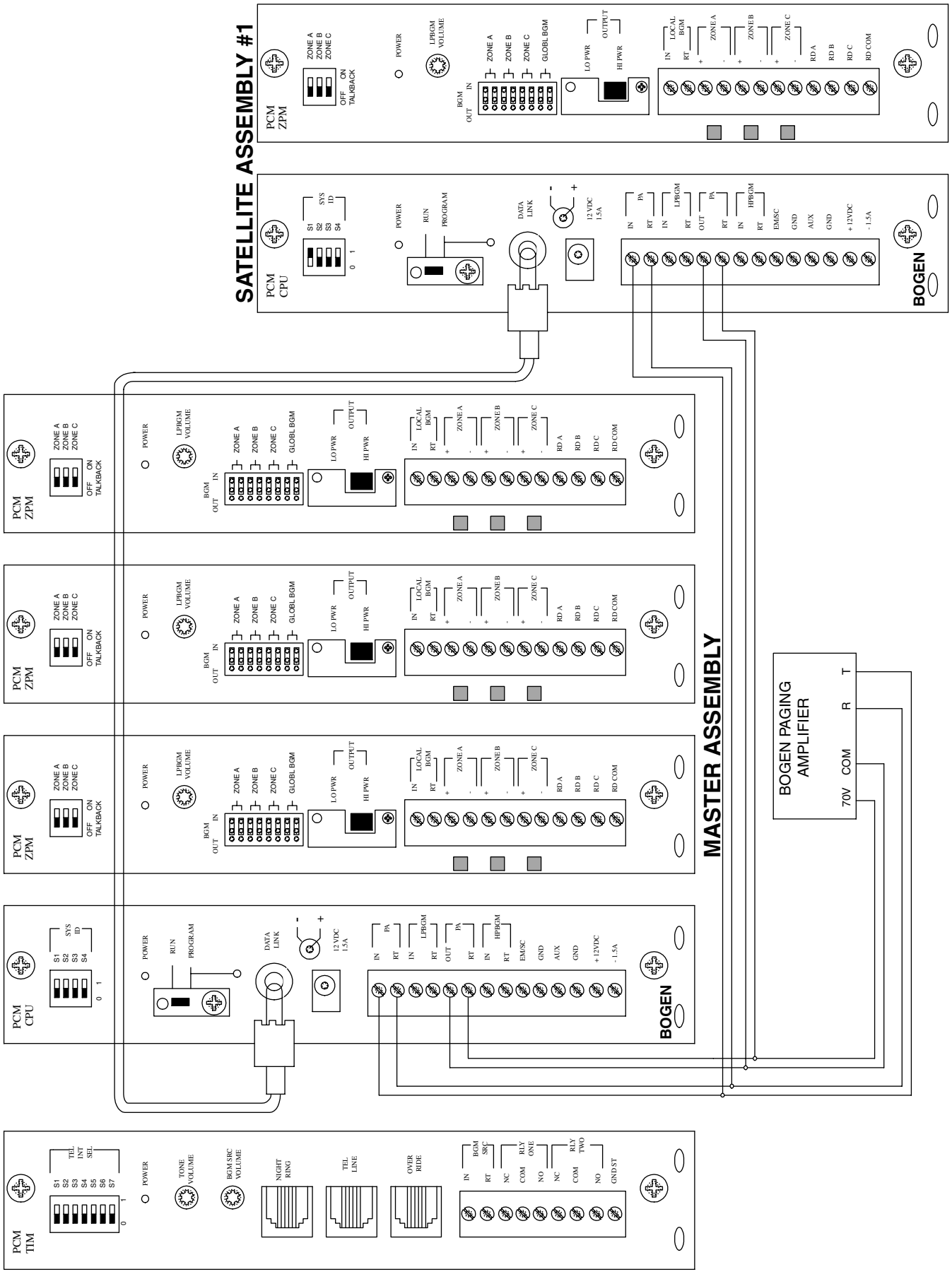
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the Station Level/Centrex port from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access zone ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio).
- Follow the same steps for ZONES TWO (02) and THREE (03).
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 6: EXTENDED PAGING SYSTEM



CONFIGURATION 6:

EXTENDED PAGING SYSTEM

This illustration shows the wiring between a master assembly and a satellite assembly in a PCM system with a satellite assembly for one-way paging.

As described previously, the required setup for one-way basic configuration includes: PCMTIM, PCMCPU, PCMZPM, and the power supply PCMPS2. For PCM systems with satellites (more than 9 zones), the number of modules and power supplies will increase as follows:

# ZONES	# PCMTIM	# PCMCPU	# PCMZPM*	# PCMPS2
1 to 9	1	1	1 to 3	1
10 to 18	1	2	4 to 6	2
19 to 27	1	3	7 to 9	3
28 to 36	1	4	10 to 12	4
37 to 45	1	5	13 to 15	5
46 to 54	1	6	16 to 18	6
55 to 63	1	7	19 to 21	7
64 to 72	1	8	22 to 24	8
73 to 81	1	9	25 to 27	9
82 to 90	1	10	28 to 30	10
91 to 99	1	11	31 to 33	11

Notice that for every 9 zones, one additional PCMCPU and one additional PCMPS2 are needed.

* 1 PCMZPM for every 1-3 paging zones.

INSTALLATION:

STEP 1: Assembling Master Modules PCMTIM to PCMCPU and to PCMZPM

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Assembling Satellite Modules PCMCPU to PCMZPM (see Illustration on page 38)

- Plug the 6-pin power connector from the PCMZPM module to the PCMCPU module jack (J2.) Be sure that the locking ridge faces the header wall. (Green wire to the top).
- Plug the 26-pin ribbon cable from the PCMZPM module to the PCMCPU module 26-pin connector (J1). Be sure to align the polarizing tab in slot. (Pin 1 red stripe to the top).
- The satellite systems are usually installed below the the master assembly and must be within 3 feet of each other.
- Use an RCA cable to connect the PCMCPU modules from DATA LINK to DATA LINK RCA connectors. (See drawing.)

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the SYS-ID DIP switches on the master PCMCPU module to the OFF position (to the left).
- Set the SYS-ID DIP switches on the first satellite PCMCPU module to the following configuration: Switch 1 to the ON position (to the right). Switches 2, 3, & 4 to the OFF position (to the left). See SYS-ID switch settings chart on page 38 for additional satellite systems.
- Set the RUN-PROGRAM switch on the PCMCPU module to the RUN mode (up).
- Set the TALK BACK switches on the PCMZPM modules to the OFF position (to the left) for all zones.
- Set the OUTPUT switch on all the PCMZPM modules to the HI-PWR position (down).

STEP 4: Testing your System

- Connect one PCMPS2 power supply to each PCMCPU module either by the power jack 12V DC input or wire it to the 12V DC screw terminals, observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the paging from the phone system and verify access tones (double beep).
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Locate the terminals on both PCMCPU modules labeled PA OUT/RT and wire them to the COMMON and 25V or 70V output on the Bogen paging amplifier (either TPU-Series, GS-Series or Classic Series).
- Locate the terminals on the PCMCPU modules labeled PA IN/RT and wire to the TIP and RING input on the Bogen paging amplifier. At this point, the amplifier is connected in parallel to the master PCMCPU module and the satellite PCMCPU module.

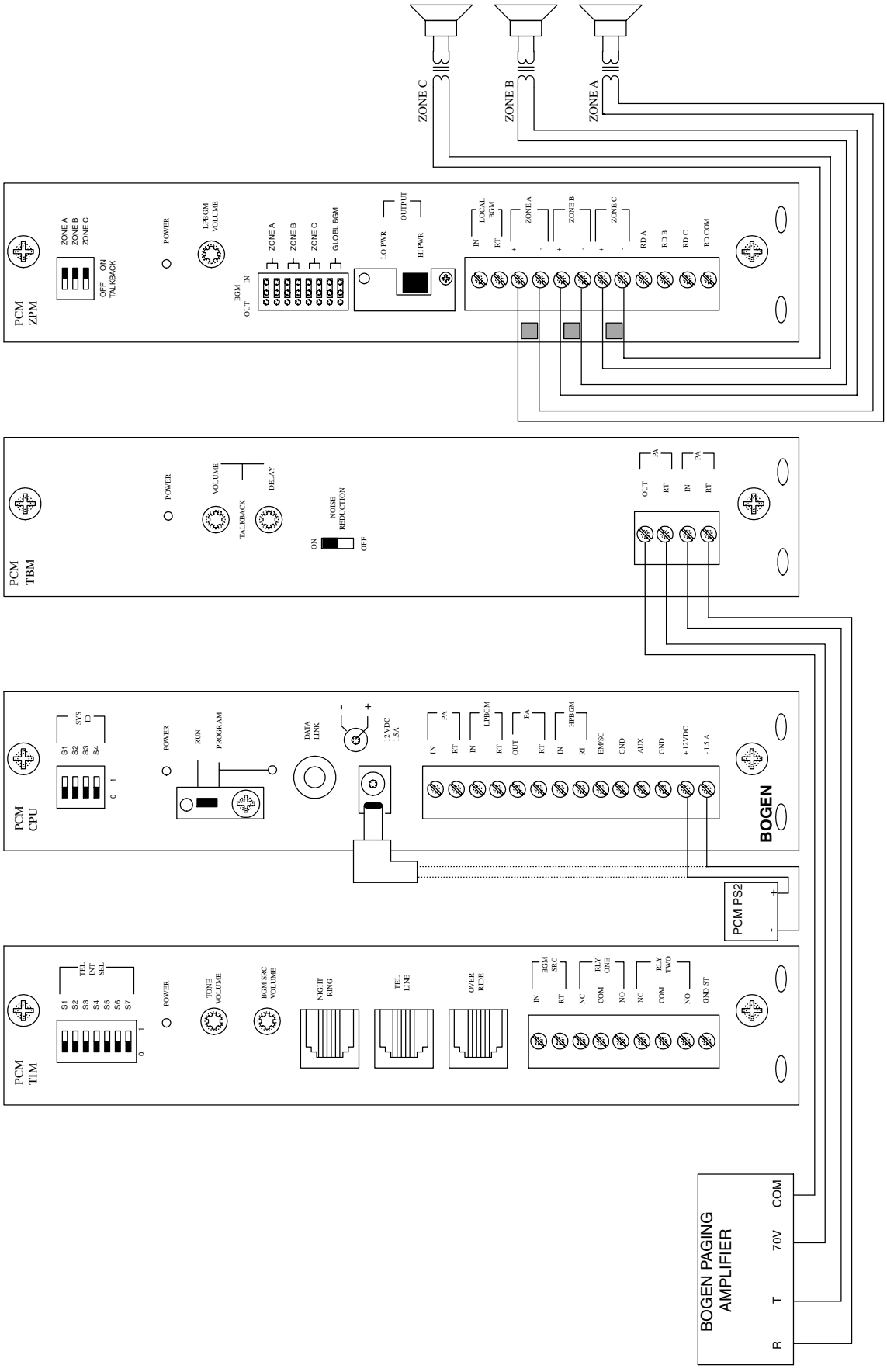
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Follow the same procedure described previously on page 5, step 7.

SETUP FOR CONFIGURATION 7:TWO-WAY TALK BACK PAGING SYSTEM



CONFIGURATION 7:

TWO-WAY TALK BACK PAGING SYSTEM

This configuration is essentially the same as the one-way paging system described previously. The main difference between the one-way configuration and this configuration is that the centralized high-power amplifier is connected to the PCMTBM module instead of the PCMCPU module. The required setup includes: PCMTIM - PCMCPU - PCMTBM - PCMZPM - PCMPS2. Modules must be assembled, from left to right, in this order.

Notes: Talk Back is only available in High-Power Zones with 25/70V AC speakers. The paging access output from the telephone system must support two-way communications.

INSTALLATION:

STEP 1: Assembling Modules PCMTIM to PCMCPU to PCMTBM and to PCMZPM (see Illustration on page 38)

- Plug the 6-pin power connector from the PCMCPU module to the PCMTIM module jack (J2.) Make sure that the locking ridge faces header wall. (Green wire to the top).
- Plug the 26-pin ribbon cable from the PCMCPU module to the PCMTIM module 26-pin connector (J1). Make sure to align the polarizing tab in slot. (Pin 1 red stripe to the top).
- Place the modules together and dress the connector cables away from the sheet metal so they will not get pinched.
- Push the two units together while aligning the locking tabs in the PCMTIM module to the locking slots in the PCMCPU module. Slide the two units until the faces of both units are even.
- Secure the two units together by tightening a screw into the screw clamp tab in the back of the unit.
- Follow the same steps to add the PCMTBM module and the PCMZPM modules.

Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting Telephone System Paging Output to the PCMTIM

- Refer to paging access modes described previously in Step 2 on pages 5 (paging port/contact closure), 7 (paging port/VOX), 9 (loop start trunk), 11 (ground start trunk), or 13 (station level/Centrex).

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the SYS-ID DIP switches on the PCMCPU to the OFF position (to the left).
- Set the RUN-PROGRAM switch on the PCMCPU to the RUN mode (up).
- Set the TALK BACK switches for the zones requiring two-way talk back to the ON position (right) on the PCMZPM module.
- Set the OUTPUT switch on the PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the paging from the phone system and verify access tones (double beep) in handset.
- Speak into the handset and listen. You should be able to hear the Talk Back Relay clicking back and forth inside the PCMTBM module. (You must be near the PCM unit to hear it.)
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Locate the terminals on the PCMTBM module labeled PA OUT/RT and wire to the COMMON and either 25 or 70V output on the Bogen paging amplifier (either TPU-Series, GS-Series or Classic Series).
- Locate the terminals on the PCMTBM module labeled PA IN/RT and wire to the TIP and RING input on the Bogen paging amplifier.

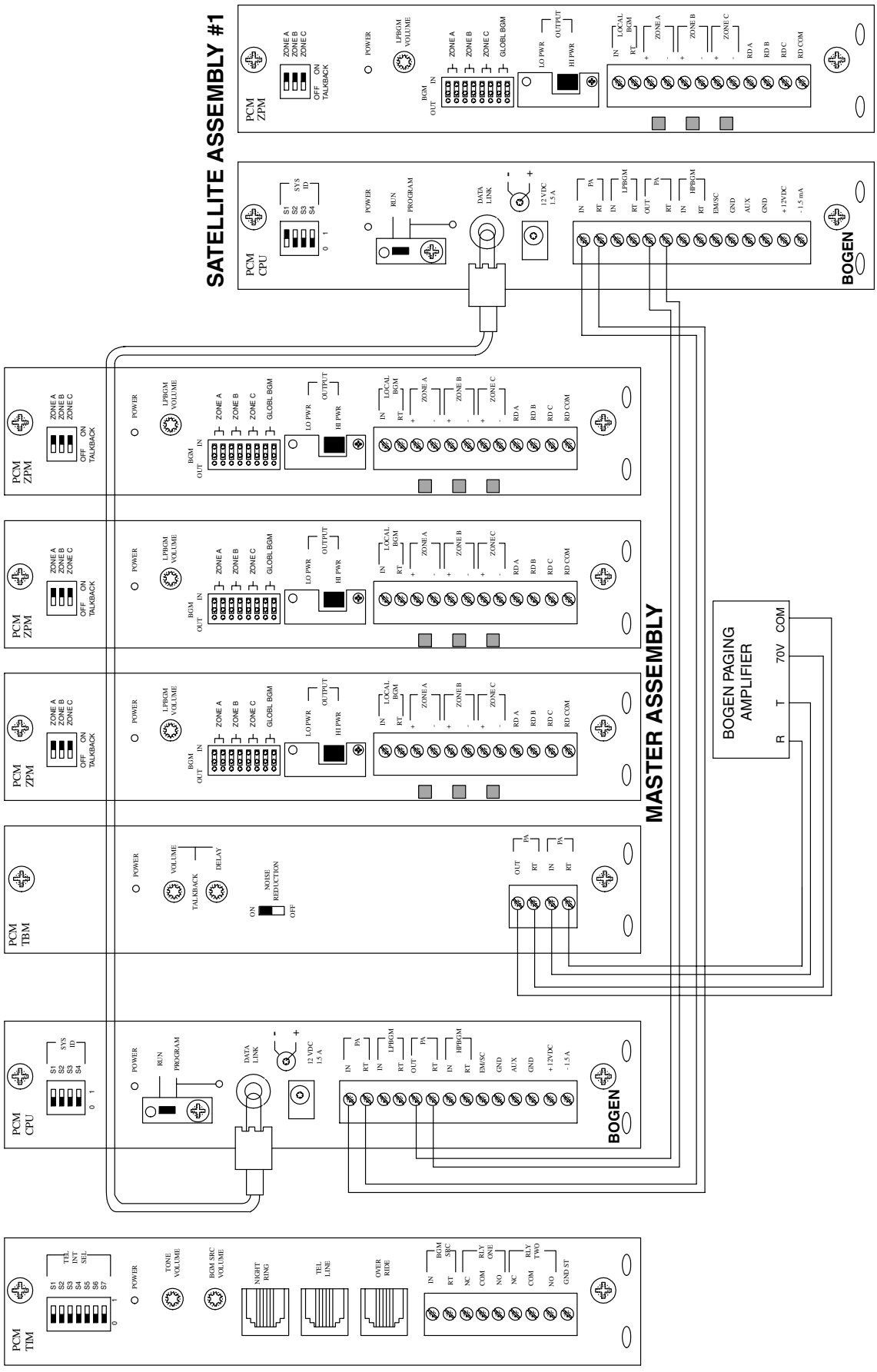
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the paging from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep). At this point you should be able to hear audio from the location where the speaker for ZONE ONE is installed.
- The volume and delay controls on the PCMTBM module control the audio back into the handset. Adjust these controls for best operation.
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 8:TWO-WAY TALK BACK EXTENDED PAGING SYSTEM



CONFIGURATION 8:

TWO-WAY TALK BACK EXTENDED PAGING SYSTEM

This configuration is essentially the same as the two-way paging system described previously on page 17. The main difference is the addition of a satellite assembly.

The required setup includes: PCMTIM - 2 PCMCPU - PCMTBM - 4 PCMZPM - 2 PCMPS2

Note: Talk Back is only available in High-Power Zones with 25/70V AC speakers.

The paging access output from the telephone system must support two-way communications.

INSTALLATION:

STEP 1: Assembling Master Modules PCMTIM to PCMCPU to PCMTBM and to PCMZPM

- Follow the same procedure described previously on page 17, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Assembling Satellite Modules PCMCPU to PCMZPM

- Follow the same procedure described previously on page 15, step 2.

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the SYS-ID DIP switches on the master PCMCPU module to the OFF position (to the left).
- Set the SYS-ID DIP switches on the first satellite PCMCPU module to the following configuration: switch 1 to the ON position (to the right), switches 2, 3, & 4 to the OFF position (to the left). See additional SYS-ID settings on page 38.
- Set the RUN-PROGRAM switch on each PCMCPU to the RUN mode (up).
- Set the TALK BACK switches on the PCMZPM modules to the ON position (to the right) for all zones.
- Set the OUTPUT switch on each PCMZPM module to the HI-PWR position (down).

STEP 4: Testing your System

- Connect one PCMPS2 power supply to each PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals, observing polarity.
- At this point all the power LEDs should be lit on each module.
- Access the paging from the phone system and verify access tones (double beep).
- At this point, the system should be functioning properly.
- Disconnect Power Supply.

STEP 5: Connecting the Paging Amplifier

- Locate the terminals on the PCMTBM module labeled PA OUT/RT and wire to the COMMON and either 25 or 70V output on the Bogen paging amplifier (either TPU-Series, GS-Series or Classic Series).
- Locate the terminals on the PCMTBM module labeled PA IN/RT and wire to the TIP and RING input on the Bogen paging amplifier.

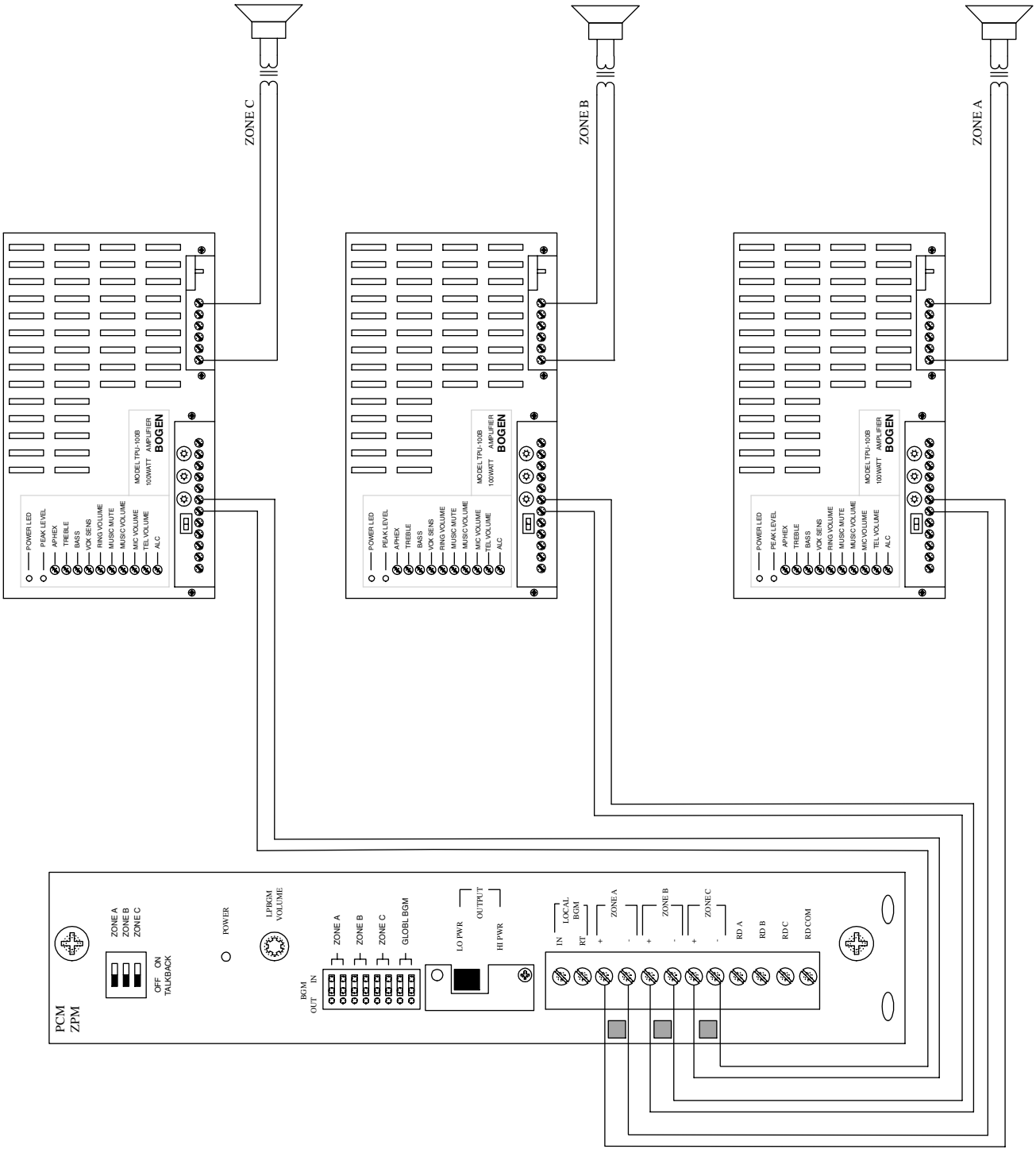
STEP 6: Connecting 25/70V AC Speakers

- Follow the same procedure described previously on page 5, step 6.

STEP 7: Testing your System

- Connect a PCMPS2 power supply to each PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a 1/2 turn.
- Access the paging from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep). At this point, you should be able to hear audio from the location where the speaker for ZONE ONE is installed.
- The volume and delay controls on the PCMTBM module, control the audio back into the handset. Adjust these controls for best operation.
- Set the Bogen amplifier to the desired volume level.

SETUP FOR CONFIGURATION 9: 3-ZONE - ONE-WAY PAGING - LOW-POWER SYSTEM - DEDICATED AMPLIFIERS OR SELF-AMPLIFIED SPEAKERS



CONFIGURATION 9:

3-ZONE - ONE-WAY PAGING - LOW-POWER SYSTEM - DEDICATED AMPLIFIERS OR SELF-AMPLIFIED SPEAKERS

Low-Power System is a switch-selectable feature that allows the system designer to use dedicated amplifiers or self-amplified speakers on the zone outputs. The PCMZPM module that is to be used as a low-power module will switch only low-level signals to the zone outputs for use with dedicated amplifiers or self-amplified speakers. Note that its output switch is set to LO PWR. In this example, three TPU100B amplifiers are used but amplified speakers can be substituted.

Note: Low-Power Systems do not support two-way paging.

INSTALLATION:

STEP 1: Assembling Modules

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect the PCMPS2 (power supply) at this point.

STEP 2: Connecting Telephone System Paging Output to the PCMTIM

- Refer to paging access modes described previously in Step 2 on pages 5 (paging port/contact closure), 7 (paging port/VOX), 9 (loop start trunk), 11 (ground start trunk), or 13 (station level/Centrex).

STEP 3: Switch Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the SYS-ID switches on the PCMCPU to the OFF position (to the left).
- Set the TALKBACK switches on the PCMZPM to the OFF position (to the left) for all zones.
- Set the LO PWR / HI PWR OUTPUT switch on the PCMZPM to the LO PWR position (up).

STEP 4: Connecting the Paging Amplifiers

- Locate the terminals on the PCMZPM module labeled ZONE A and connect to the TIP and RING terminals of the amplifier(s) for ZONE A.
- Follow the same procedure for ZONE B and ZONE C.

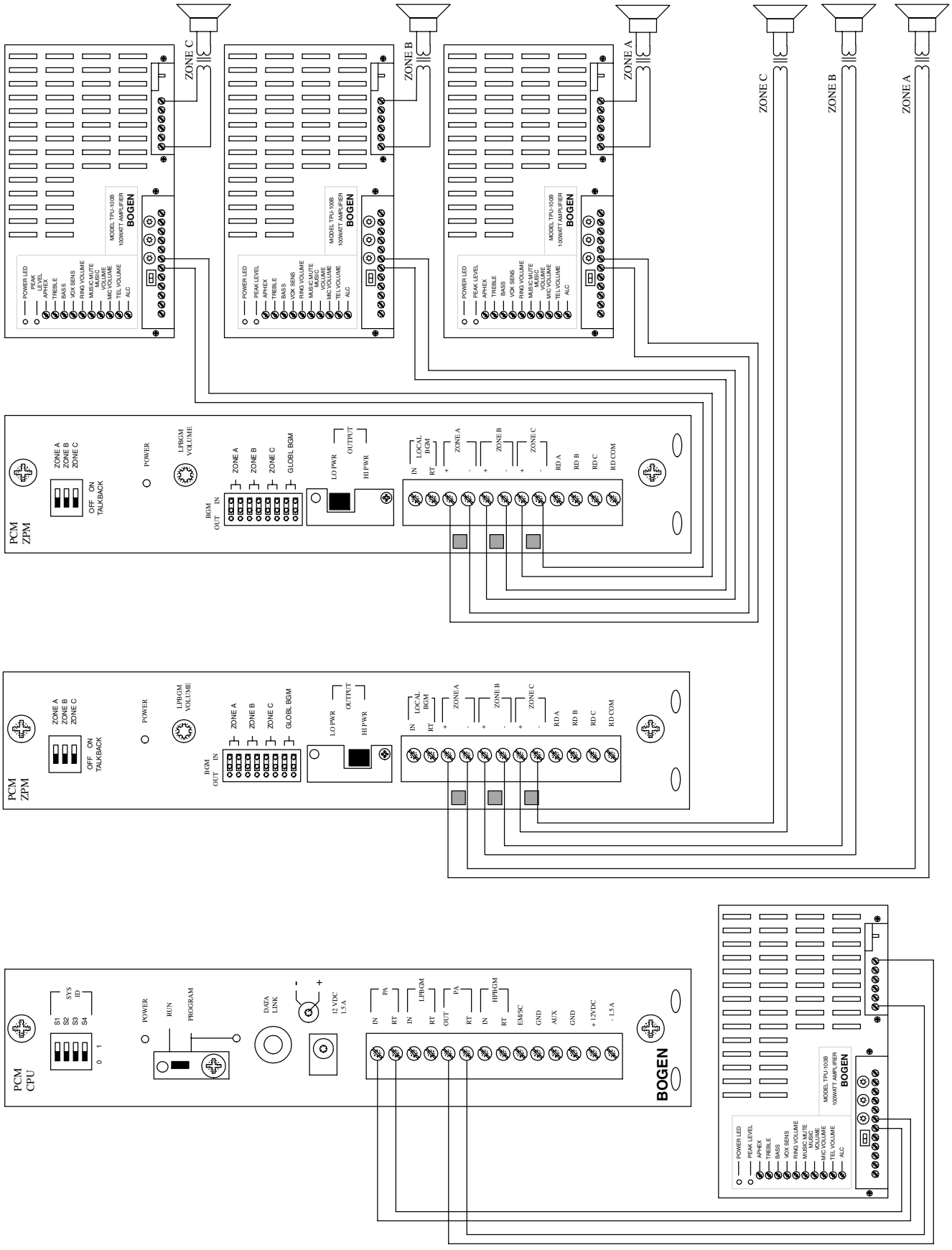
STEP 5: Connecting Self-Amplified Speakers

- Locate the terminals on the amplifiers labeled COM and 25V or 70V AC and connect the speakers related to that particular zone.

STEP 6: Testing Your System

- Follow the same procedure described previously on page 5, step 7.

SETUP FOR CONFIGURATION 10: 6 ZONES - ONE-WAY PAGING - MIXED HIGH- AND LOW-POWER ZONES - 25/70V AC OR SELF-AMPLIFIED SPEAKERS



CONFIGURATION 10:

6 ZONES - ONE-WAY PAGING - MIXED HIGH- AND LOW-POWER ZONES - 25/70V AC OR SELF-AMPLIFIED SPEAKERS

High- and Low-Power Mixed System is a non-programmable feature that lets the system designer use a dedicated amplifier or self-amplified speaker per zone and at the same time use a centralized amplifier for zones requiring less than 250 watts of power*. The PCMZPM module to be used as a low-power module must have all three zones with dedicated amplifiers or self-amplified speakers and have its output switch set to Low-Power. The other PCMZPM module will be used as a high-power module and its output switch must be set to High-Power. In this example, three TPU100B amplifiers are used on the second PCMZPM low-power module.

Note: Low-Power Systems do not support two-way paging.

INSTALLATION:

STEP 1: Assembling Modules

- Follow the same procedure described previously on page 5, step 1.

  Note: Do NOT connect PCMPS2 (power supply) at this point.

STEP 2: Connecting Telephone System Paging Output to the PCMTIM

- Refer to paging access modes described previously in Step 2 on pages 5 (paging port/contact closure), 7 (paging port/VOX), 9 (loop start trunk), 11 (ground start trunk), or 13 (station level/Centrex).

STEP 3: Switch and Control Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the SYS ID switches on the PCMCPU module to the OFF position (to the left).
- Set the TALK BACK switches on the PCMZPM module to the OFF position (to the left) for all zones.
- Set the LO PWR / HI PWR OUTPUT switch on the first PCMZPM High-Power module to the HI PWR OUTPUT position (down).
- Set the LO PWR / HI PWR OUTPUT switch on the second PCMZPM Low-Power module to the LO PWR OUTPUT position (up).

STEP 4: Connecting Amplifiers

- Locate the terminals on the PCMCPU module labeled PA IN/RT and wire it to the TIP and RING (T & R) input on the amplifier.
- Locate the terminals on the PCMCPU module labeled PA OUT/RT and wire it to the COMMON and either 25 or 70V AC output on the amplifier.
- Locate the terminals on the second PCMZPM module Low-Power module labeled ZONE A and connect the amplifier to the TIP and RING terminals. Follow the same procedure for ZONE B and ZONE C.

STEP 5: Connecting 25/70V AC Speakers

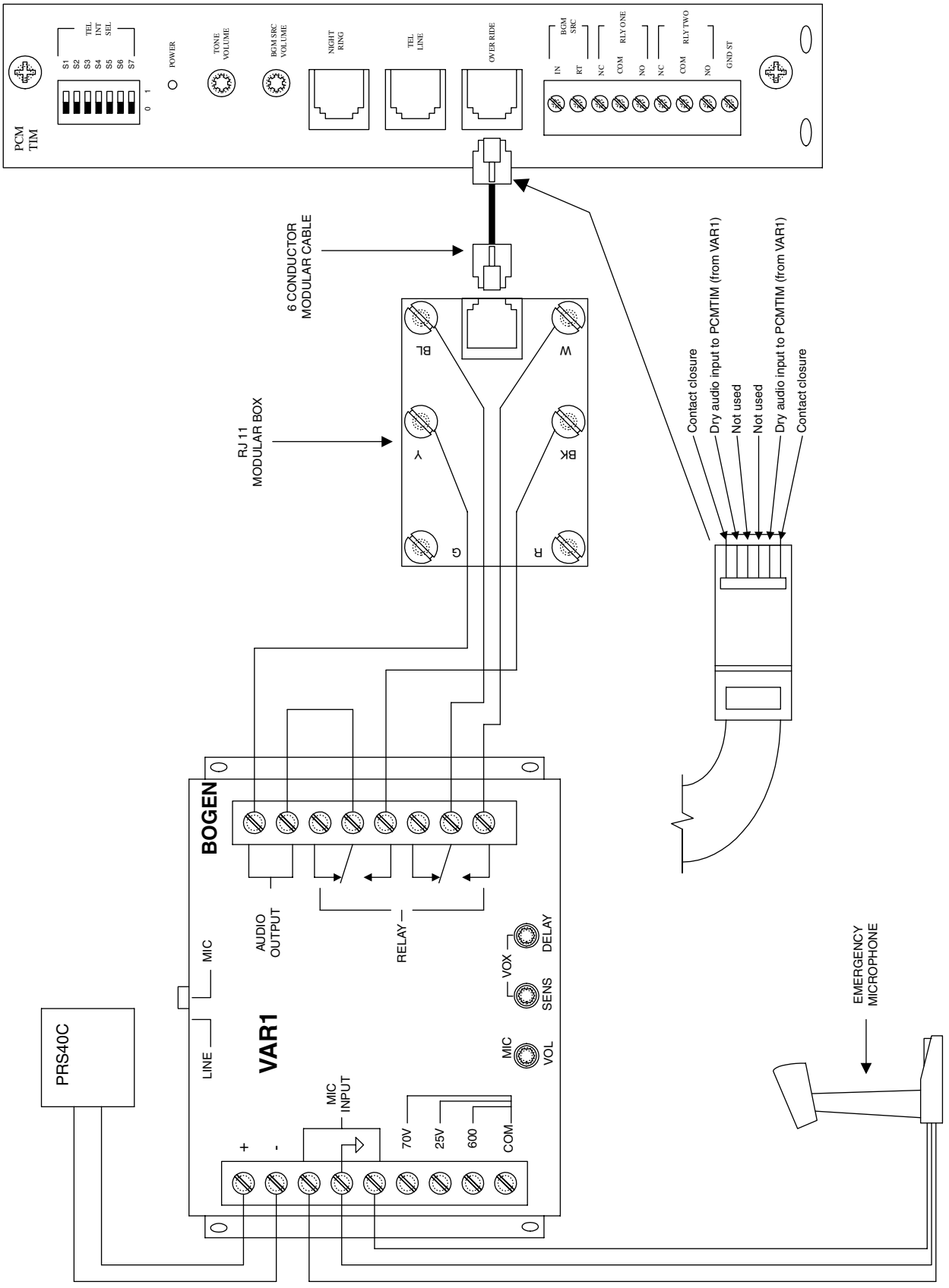
- Follow the same procedure described previously on page 5, step 6.

STEP 6: Testing Your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifiers to the AC power outlet (120 V AC 60Hz).
- Set the volume on your Bogen amplifiers to a 1/2 turn.
- Access the Paging from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio).
- Follow the same steps for ZONES TWO (02) through SIX (06).
- Set the Bogen amplifiers to the desired volume level.

* Older PCM systems only have a 150W capacity.

SETUP FOR CONFIGURATION 11: MICROPHONE OVERRIDE



CONFIGURATION 11:

MICROPHONE OVERRIDE

Microphone Override is a feature that lets the system designer take priority over all paging functions and make a system-wide page to all speakers.

In addition to the PCM modules, setup requires a Bogen VAR1 (voice-activated relay), PRS40C (12V DC power supply) and an MBS1000 or DDU250 (desktop microphone).

The Override feature includes a quad beep pre-announce tone which can be enabled or inhibited.

INSTALLATION:

STEP 1: Assembling Modules and Connecting the Amplifier

- Refer to step 1 on pages 5 and 17.

STEP 2: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5 or 17, step 5.

STEP 3: Connecting Optional Equipment

- Attach a 6-pin RJ11 modular jack to the wall next to the PCM2000 unit.
- Connect the first audio output terminal from the top of the VAR1 (right screw terminals) to the RJ11 modular jack terminal Y (yellow). Connect the second audio output terminal from the top of the VAR1 to the N.O. contact of the VAR1.
- Connect the fifth screw terminal from the top of the VAR1 (see drawing) to the RJ11 modular jack terminal BK (black).
- Connect the relay terminals (normally open contacts) from the VAR1 (two bottom right screw terminals) to the RJ11 modular jack terminals W (white) and BL (blue).
- Connect the MBS1000 or DDU250 microphone leads to the VAR1 (left screw terminals): red to third screw, black to fifth screw, and shield to fourth screw.
- Do not use the white and green wires from the MBS1000 or DDU250 unless you want to use them instead of the normally open contacts on the VAR1.
- Connect a 6-pin RJ11 modular cable between the RJ11 modular jack (previously attached to the wall next to the PCM2000) and the Override RJ11 input on the PCMTIM module.
- Connect the PRS40C power supply to the VAR1 (two top left screw terminals) observing polarity or use the mini-plug and connect it into the mini-jack at the bottom.

STEP 4: Switch and Control Settings

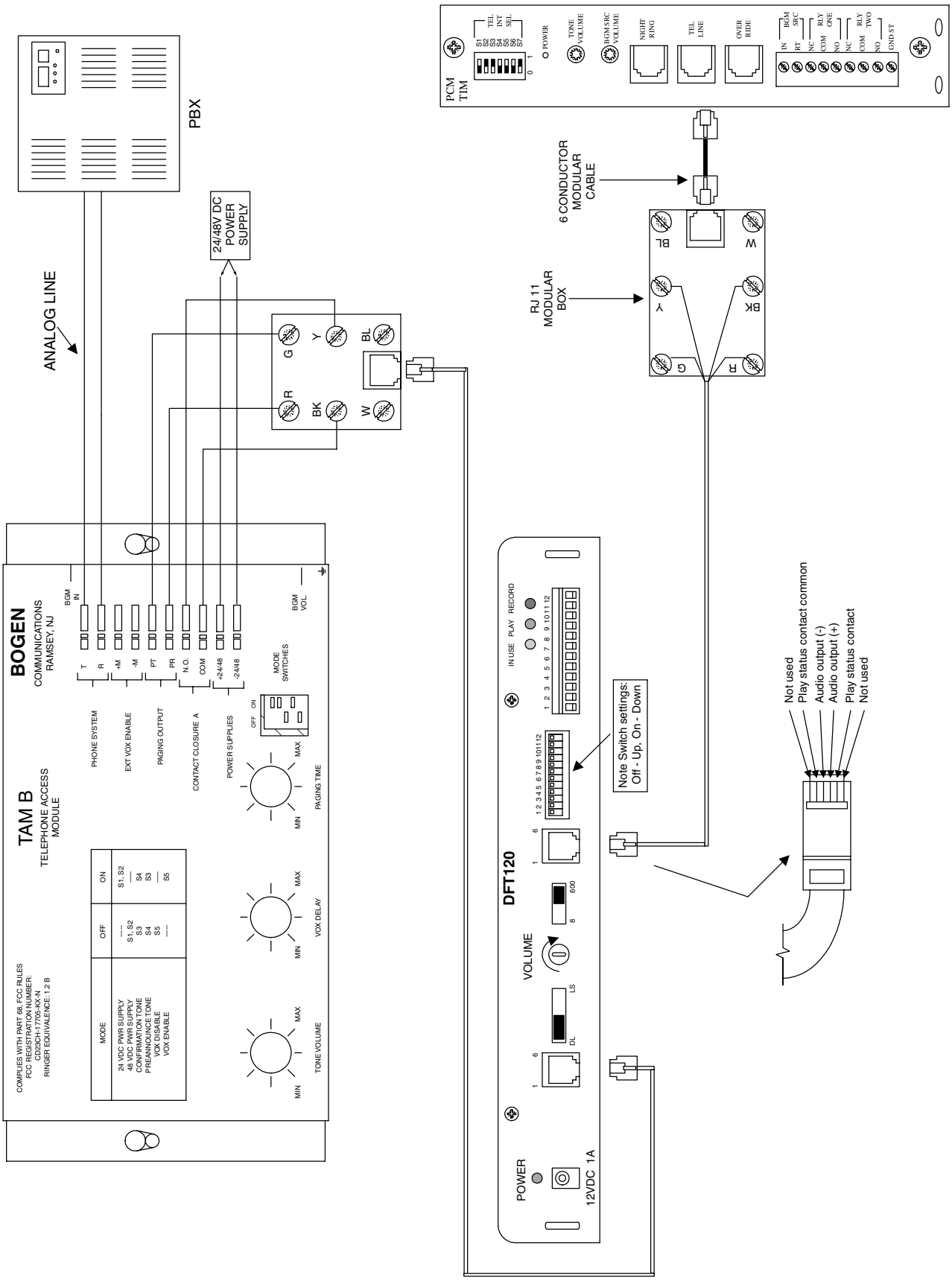
- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)
- Set the Line/MIC switch on the VAR1 to the MIC position.
- Set the Mic volume control on the VAR1 at 50%.

STEP 5: Testing Your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier a half turn.
- Access the paging from the telephone system and listen (on the handset) for the confirmation tone (double beep).
- Dial 01 to access ZONE ONE and listen (on the handset and also to the speakers) for a pre-announce tone (single beep) followed by your page (audio).
- Follow the same steps for ZONES TWO (02) and THREE (03).
- Access the emergency override by pressing the talk bar on the MBS1000 or sliding the DDU250 switch.
- You should hear a quad beep pre-announce tone followed by your all-call/emergency page.
- Adjust the VAR1 and PCM2000 controls for optimal operation.

NOTE: You will not be able to access individual zones using the Override feature, it is for All-Call Emergency only to all zones.

SETUP FOR CONFIGURATION 12: DFT120 & TAMB WIRING DIAGRAM - LOOP START TRUNK, GROUND START TRUNK OR STATION LEVEL



CONFIGURATION 12:

DFT120 & TAMB WIRING DIAGRAM - LOOP START TRUNK, GROUND START TRUNK, OR STATION LEVEL

In this configuration, the telephone output is connected to the Bogen Telephone Access Module model TAMB; the TAMB module is connected to the Bogen Digital Feedback Terminator model DFT120; and the DFT120 is connected to the PCM2000 system. The TAMB module is activated by the telephone system and, at the same time, the DFT120 is activated by the TAMB's normally open contacts. Using digital technology, the DFT120 stores the DTMF tones and the paging audio. When the TAMB closed contacts are removed from the DFT120, the DFT120 activates the PCM2000 system also using normally open contacts, and plays the page (audio). In addition to the above equipment, you will also need a PRSASAC power supply and two RJ11 modular boxes.

INSTALLATION:

STEP 1: Assembling Modules and Connecting the Amplifier

- Refer to step 1 on pages 5 and 17.

STEP 2: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5 or 17, step 5.

STEP 3: Connecting an Analog Line or Ground Start Trunk from the Telephone System to the TAMB

- Take the Analog Line or Ground Start trunk pair from the telephone system and wire it to the TAMB terminals T & R.

STEP 4: Connecting the TAMB Module to the DFT120

- Using a 6-pin RJ11 modular jack, connect terminals labeled PT & PR from the TAMB to the modular jack terminals R (red) and G (green).
- Connect terminals labeled N.O. & COM from the TAMB to the modular jack terminals Y (yellow) and BK (black).
- Connect a 6-pin RJ11 modular cable from the RJ11 jack to the AUDIO IN jacks on the DFT120. Place the switch labeled DL/LS to the DL (Dry Loop) position.
- Connect terminals labeled +24/48 & -24/48 from the TAMB to the PRSASAC power supply. Use pins 1 & 2 labeled 24V DC / 450 mA.
- Connect the DFT120 power supply (supplied with the unit) to the DFT120.

STEP 5: Connecting the DFT120 to the PCMTIM Module

- Attach a 6-pin RJ11 modular jack to the wall next to the PCM2000 unit.
- Connect terminals 3 & 4 from the DFT120 jack labeled AUDIO OUT, to the RJ11 modular jack terminals R (red) and G (green).
- Connect terminals 2 & 5 from the DFT120 jack labeled AUDIO OUT (PLAY contact) to the RJ11 modular jack terminals Y (yellow) and BK (black).
- Connect a 6-pin RJ11 modular cable between the RJ11 modular jack and the TEL LINE RJ11 input on the PCMTIM module.

STEP 6: Switch and Control Settings

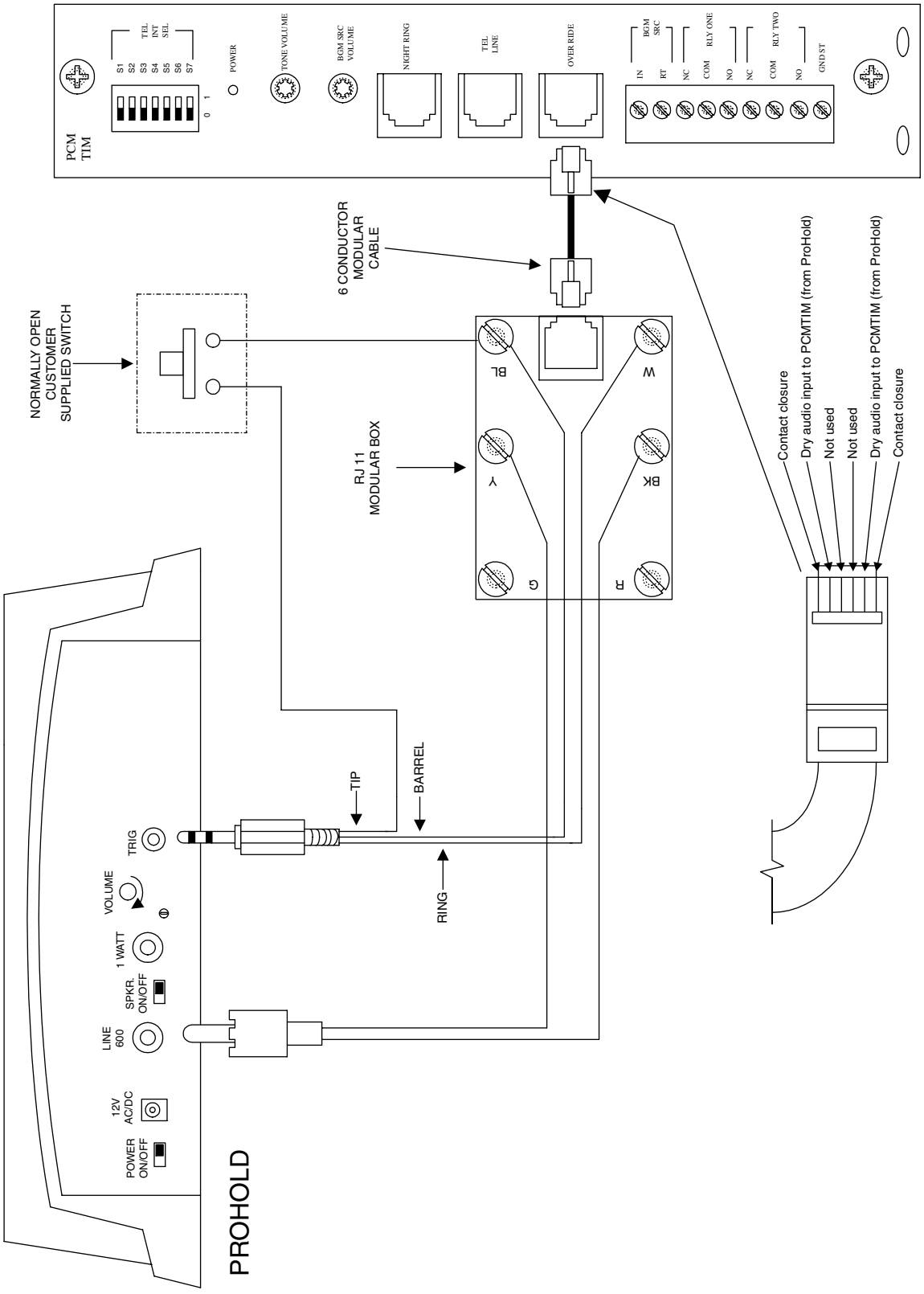
- Set the switches 1, 2 & 4 to ON (to the right) and 3 & 5 to OFF (to the left) on the TAMB.
- Set the switches 2, 3, & 7 to ON (to the right) and 1, 4, 5 & 6 to OFF (to the left) on the PCMTIM module for Paging Port Contact closure operation.

STEP 7: Testing Your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals observing polarity.
- Connect the PCMPS2, PRSASAC, and the DFT120 power supplies and the amplifier to the AC power outlet 120V AC 60Hz.
- Set the volume on your Bogen amplifier to a half turn.
- Adjust the DFT120 AUDIO OUT volume control to 50%. (You may need to readjust this control higher or lower later, after the test.)
- Access the paging from the telephone system. The RECORD LED on the DFT120 must be lit showing that the DFT120 is already recording.
- Dial 01 to record ZONE ONE DTMF tone followed by a test page. (Notice that you will not hear audio coming from the speakers at this point.)
- Hang-up the handset. The PLAY LED on the DFT120 must light showing that the DFT120 is playing the page and you must be able to hear the page.
- If the page is too low, adjust the control for optimal operation.

Note: Unlike the previous Digital Feedback Terminator (DFT30), the DFT120 will accept a Loop Start Trunk or Page Port directly connected to the unit. Therefore, when connecting to a Loop Start Trunk, a TAMB is not required. (See DFT120 manual for complete instructions.)

SETUP FOR CONFIGURATION 13: EMERGENCY VOICE ANNOUNCEMENT OVERRIDE



CONFIGURATION 13:

EMERGENCY VOICE ANNOUNCEMENT OVERRIDE

Voice Announcement Override is a non-programmable feature that lets the caller take priority over all paging functions and make a system-wide emergency voice announcement page to all speakers. In addition to the PCM modules, this option requires a ProHold (digital announcer) and a normally open momentary switch supplied by the user.

The Override feature includes a quad beep pre-announce tone which can be enabled or inhibited through programming.

INSTALLATION:

STEP 1: Assembling Modules and Connecting the Amplifier

- Refer to step 1 on pages 5 and 17.

STEP 2: Connecting the Paging Amplifier

- Follow the same procedure described previously on page 5 or 17, step 5.

STEP 3: Connecting Optional Equipment

- Attach a 6-pin RJ11 modular jack to the wall next to the PCM2000 unit.
- Connect the audio output from the ProHold labeled Line 600 using the supplied RCA cable to the RJ11 modular jack terminals Y (yellow) and BK (black).
- Using the supplied stereo mini-plug, connect it to the TRIG input connector of the ProHold Digital Announcer. At the end of this cable, you will see 3 bare wires labeled TIP, BARREL and RING.
- Connect the TIP wire to one of the terminals on the normally open connections of the customer-supplied switch and the other switch terminal to the RJ11 modular jack terminal BL (blue).
- Connect the BARREL wire to the RJ11 modular jack terminal BL (blue). At this point you should have two wires connected to the BL (blue) terminal.
- Connect the RING wire to the RJ11 modular jack terminal W (white).
- Connect a 6-pin RJ11 modular cable between the RJ11 modular jack and the Override RJ11 input on the PCMTIM module.

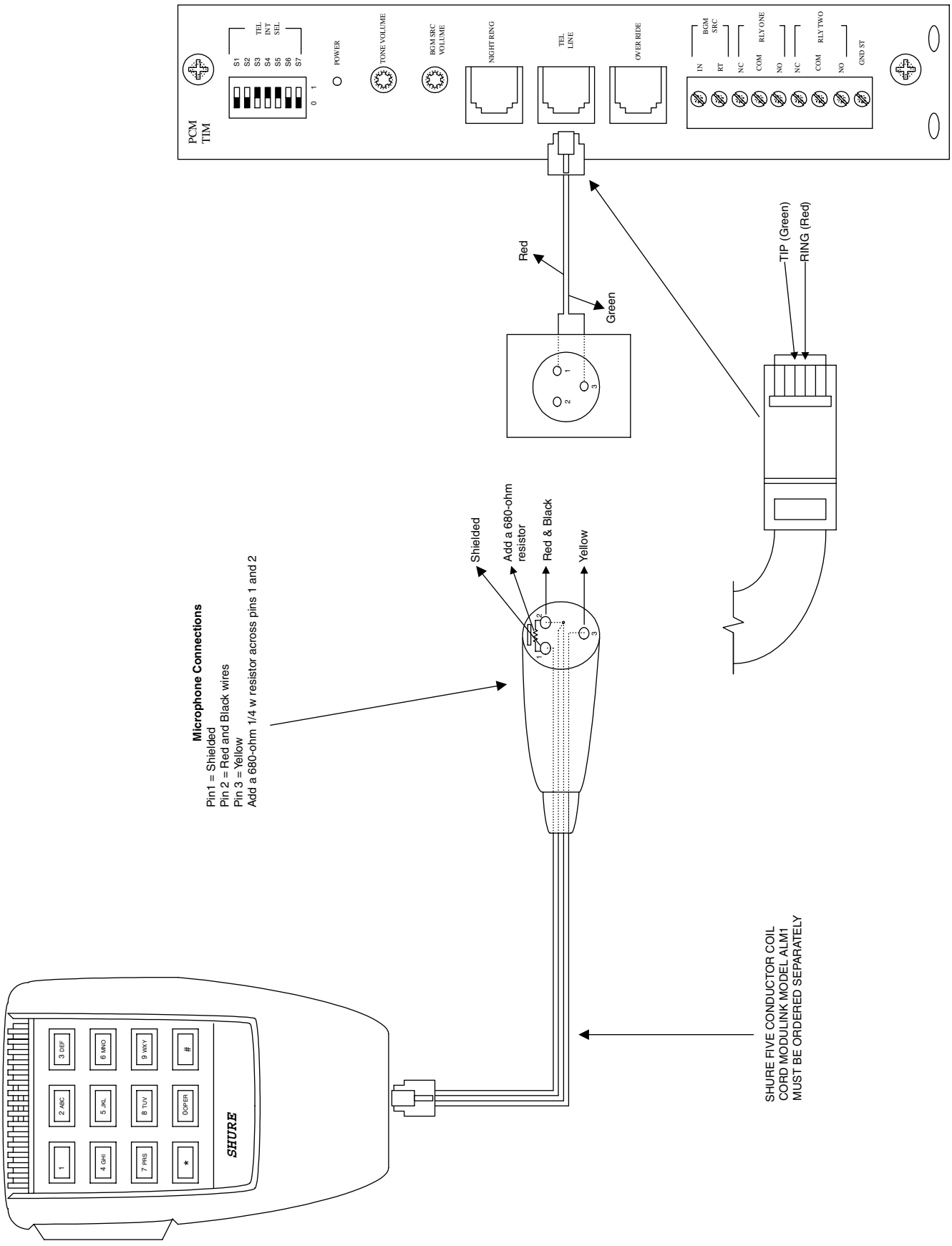
STEP 4: Switch and Control Settings

- Set the TEL-INT-SEL DIP switches on the PCMTIM module to match the paging output access from the telephone system based on the type of telephone interface used. (See step 3 on page 5 if using Page Port Contact Closure; page 7 for Page Port VOX; page 9 for Loop Start Trunk; page 11 for Ground Start Trunk; or page 13 for Station Level/Centrex.)

STEP 5: Testing Your System

- Connect the power supply PCMPS2 to the PCMCPU module to either the power jack 12V DC input or wire it to the 12V DC screw terminals, observing polarity.
- Connect the Bogen amplifier to the AC power outlet (120V AC 60Hz).
- Set the volume on your Bogen amplifier to a half turn.
- Insert a pre-recorded normal bias audio tape into the ProHold cassette compartment.
- Once the ProHold announcer has downloaded the audio and the LOAD light goes "OFF", press the normally open customer supplied switch once and listen for the all-call announcement.

SETUP FOR CONFIGURATION 14: DTMF MICROPHONE ZONE PAGING



CONFIGURATION 14:

DTMF MICROPHONE ZONE PAGING

This section will describe the configuration for the use of a Shure microphone Model 885TT with DTMF dialing capabilities and the MODULINK five-conductor coil-cord model ALM-1.

In addition to the PCM2000 system and associated amplifiers, the model numbers and components required for this configuration are:

1- Shure Microphone model 885TT
1- Shure MODULINK coil cord model ALM-1
1- XLR connector
1- 680 ohms ¼-watt resistor

Paging with a DTMF Shure condenser microphone is a non-programmable feature that lets the caller use a Shure 885TT microphone to page one-way to specific zones or all zones.

Note: The Shure microphone model 885TT requires a modification in order to operate properly with the PCM2000 zone paging modules.

SHURE 885TT MODIFICATION:

STEP 1: Disassembling the Microphone

- Remove the cable, if attached, to the microphone using a paper clip.
- Remove the four Phillips-head screws from the back of the microphone.
- Hold the microphone with its back toward you and the cable connector down, and carefully separate the case back slightly from the front.
- Pivot the case back to the right taking care not to damage any internal leads or components.

STEP 2: Detaching the Case Back and Rear Printed Circuit Board

- With the partially disassembled microphone face down on a flat surface and with the cable entry toward you, locate the multi-pin connector on the left side between the center board and the rear board.
- Carefully pry the rear board away from the connector on the centerboard. You may need a small flathead screwdriver to separate the terminal pins connected to the rear board and the connector attached to the center board.
- Lift the microphone case back and the rear board away from the center board.

STEP 3: Modification

- Locate pin 5 on the solder side of the J303 phone jack (cable entry) and cut the trace around pin 5, disconnecting it from ground.
- Locate the black wire connected from the microphone switch to the first printed circuit board and unsolder it from the board.
- Solder the black wire disconnected previously from the first P.C. board to pin 5 on the soldered side of the J303 phone jack (cable entry).
- Locate transistor Q303 on the component side and clip or unsolder the collector lead.

STEP 4: XLR Connector Setup

- An XLR connector (not included) is recommended.
- Solder the XLR connector to the Shure microphone coil cord MODULINK model ALM-1 as follows:
    - Solder a 680-ohm resistor across pins 1 and 2
    - Solder-shielded wire to pin 1, red and black wires to pin 2, and yellow to pin 3.

STEP 5: Reassembling

- Reassemble the microphone by reversing the steps of disassembly.

OPERATION:

- Connect the XLR connector to MIC socket.
- Press and keep pressed the microphone switch.
- Dial the two digits to access the zone desired or dial 00 for all-call.
- Make a page.
- Release the microphone switch.
- Repeat procedure to page again.

CONFIGURATION 15:

SINGLE AMPLIFIER BACKGROUND MUSIC LINE-LEVEL SIGNAL

Single amplifier BGM operation is a programmable feature that lets the PCM2000 use the paging amplifier to provide high-power BGM to the 25/70V AC speakers when the paging system is idle.

INSTALLATION:

STEP 1: Connecting Telephone System Paging Output to the PCMTIM

- Refer to paging access modes described previously in Step 2 on pages 5 (paging port/contact closure), 7 (paging port/VOX), 9 (loop start trunk), 11 (ground start trunk), or 13 (station level/Centrex).

STEP 2: Connecting the BGM Source

- Connect the BGM source output to the PCMTIM module terminals labeled BGM SOURCE IN/RT.

STEP 3: PCMCPU Switch Settings

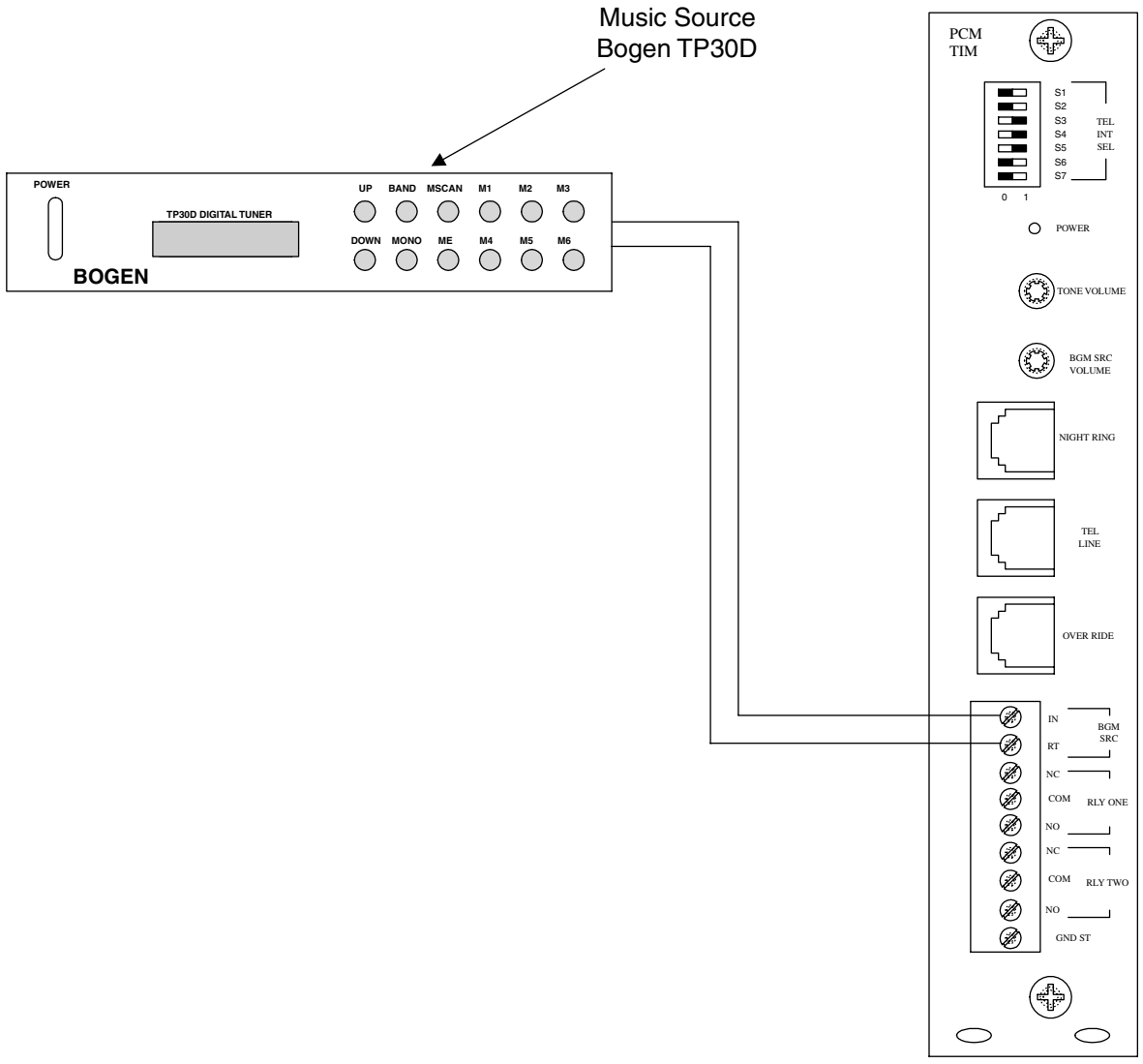
- Remove the switch lock on the PCMCPU module and place the PROGRAM/RUN switch to the PROGRAM position (down), the green LED will illuminate.

STEP 4: Testing the System

- Access the PCM2000 system (either use a single 2500-series line telephone or butt set or dial the paging access number from the telephone system). You will hear 3 beep tones indicating access to the programming mode.
- Dial 019 follow by the (#) key. You will hear a short double beep if the programming was accepted and stored in the system.

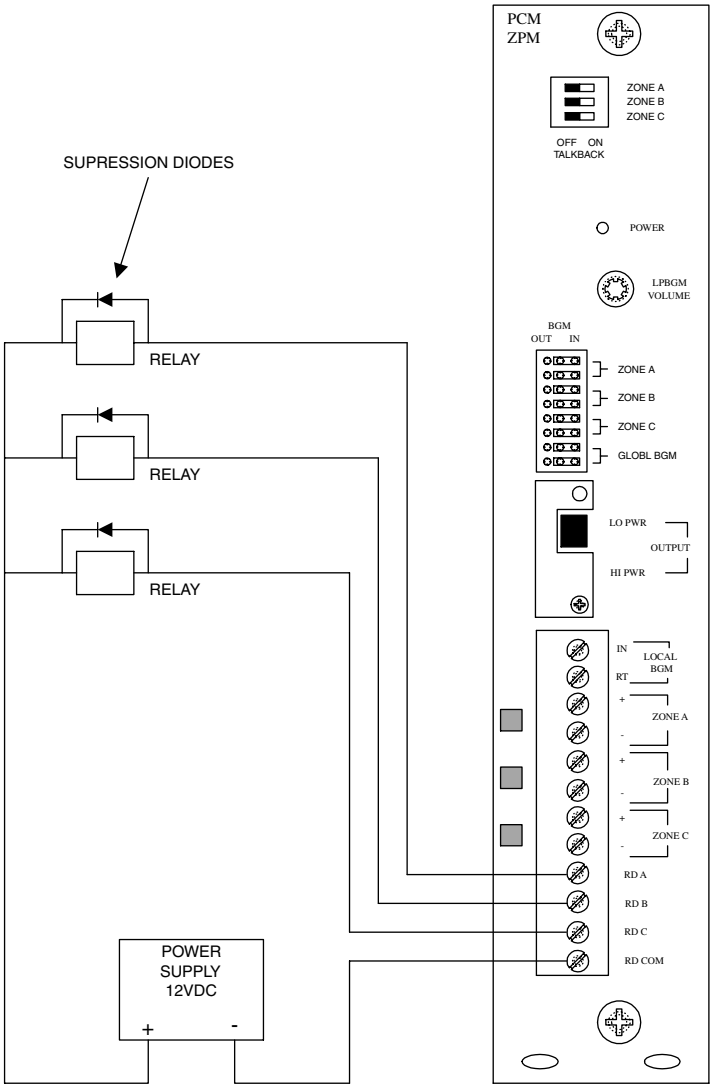
STEP 5: Prepare System for Operation

- Hang up the programming phone and then place the PROGRAM/RUN switch in the RUN position. The green LED will go out. Replace the switch lock.



CONFIGURATION 16:

RELAY DRIVER OUTPUT



Each PCMZPM module has three relay driver outputs - RD A, RD B, and RD C - one for each speaker zone.

When a zone is activated, its relay driver is shorted to RD COM through an open collector transistor. These drivers can be used to activate external relays to provide greater power capacity or to operate external equipment. The power supply for these relays must be 12V DC or less. The total sink current per driver can not exceed 100mA.

SECTION II - PROGRAMMING

SYSTEM PROGRAMMING

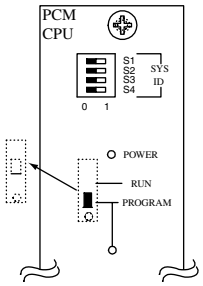
System programming lets you set certain PCM options and tone features using the DTMF keys of a telephone. It also lets you program paging zone groups and signaling zone groups.

All programming is accomplished through the TEL LINE jack on the PCMTIM module regardless of the telephone interface used.

Note: To simplify initial programming, it is recommended that you use the Loop Start Trunk configuration with a single-line 2500-series telephone or your Butt Set connected to the TEL LINE input.

You do not need to program the system to set the zones. The system is ready from the factory to access individual zones and All-Call.

To program the PCM2000 system, follow these instructions:



1. Remove the switch lock on the PCMCPU module and place the PROGRAM/RUN switch to the PROGRAM position (down). The green LED will illuminate.

2. Access the PCM2000 system (either use a single 2500-line telephone or butt set or dial the paging access number from the telephone system).

3. You will hear 3 beep tones indicating access to the programming mode.

4. Dial the Feature Code for the option you wish to program. (See Feature Codes and Defaults list.)

Note: After you have entered a Feature Code (and any other data), you must press the [#] key to enter it into the system. If the system accepts the code (and data), you will hear a short double beep confirming that the data has been stored in the system.

Continue with the next Feature Code immediately after the confirming double beep.

If the information is not accepted, you will hear a busy tone. In this case, you should hang-up, check the code and the data, then re-access the system and try again.

5. Once you have finished programming, you must first hang-up the programming phone and then place the Program/Run switch in the Run position. The green LED will go out. Replace the switch lock.

Remember to press the [#] key after you enter a Feature Code.

FEATURE CODES AND DEFAULTS

Feature	*Feature Code*	*Additional Data*	*Default*
Privacy Beep			
Inhibit	006		
Enable	007		Enable
Pre-announce Tone			
Inhibit	003		
Beep	004		
Chime	005		Chime
Confirmation Tone			
Inhibit	001		Inhibit
Enable	002		
Emergency O/R Tone			
Inhibit	008		Inhibit
Enable	009		
All-Call			
Inhibit	010		
Enable	011		Enable
Dialing Time-out			
Inhibit	012		
Enable	013		Enable
Trunk Disconnect			
Inhibit	014		Inhibit
Enable	015		
1 Amp BGM			
Inhibit	018		Inhibit
Enable	019		
Default Timer	050	00-99	03 (See Note 1 - p. 37)
VOX Timer	051	0-9	6 (See Note 2 - p. 37)
Zone Group	*01	Zones Numbers	No Zones
	↓	"	
		"	
		"	
	*32	"	
EM/SC			
Zone Group	*92	Zone Numbers	All-Call
No Tone	020		
Follow Contact	021		
2-Second Tone	022		
3-Second Tone	023		3-Second Tone
4-Second Tone	024		
5-Second Tone	025		
6-Second Tone	026		
7-Second Tone	027		
Chime	028		
Quad Beep	029		
Night Ring			
Zone Group	*93	Zone Numbers	All-Call
No Tone	030		
Simulated Ring	031		Ring
Chime	032		
Code Call			
Zone Group	*94	Zone Numbers	All-Call
Inhibit	040		Inhibit
Pattern	041		
Echo	042		
1 Play	043		1 Play
1 Repeat	044		
2 Repeat	045		

Clock Set	060	HHMM	00:00
Clock Sync.	067	HHMM	(See Note 3 - p. 37)
Inhibit	068		Inhibit
Enable	069		
Time Trigger 1			
Zone Group	*81	Zone Numbers	No Zones
Inhibit	110		Inhibit
Enable	111	HHMM	(See Note 3 - p. 37)
2-Second Tone	112		
3-Second Tone	113		3-Second Tone
4-Second Tone	114		
5-Second Tone	115		
6-Second Tone	116		
7-Second Tone	117		
8-Second Tone	118		
Chime	119		
Time Trigger 2			
Zone Group	*82	Zone Numbers	No Zones
Inhibit	120		Inhibit
Enable	121	HHMM	(See Note 3 - p. 37)
2-Second Tone	122		
3-Second Tone	123		3-Second Tone
4-Second Tone	124		
5-Second Tone	125		
6-Second Tone	126		
7-Second Tone	127		
8-Second Tone	128		
Chime	129		
Time Trigger 3			
Zone Group	*83	Zone Numbers	No Zones
Inhibit	130		Inhibit
Enable	131	HHMM	(See Note 3 - p. 37)
2-Second Tone	132		
3-Second Tone	133		3-Second Tone
4-Second Tone	134		
5-Second Tone	135		
6-Second Tone	136		
7-Second Tone	137		
8-Second Tone	138		
Chime	139		
Time Trigger 4			
Zone Group	*84	Zone Numbers	No Zones
Inhibit	140		Inhibit
Enable	141	HHMM	(See Note 3 - p. 37)
2-Second Tone	142		
3-Second Tone	143		3-Second Tone
4-Second Tone	144		
5-Second Tone	145		
6-Second Tone	146		
7-Second Tone	147		
8-Second Tone	148		
Time Trigger 5			
Zone Group	*85	Zone Numbers	No Zones
Inhibit	150		Inhibit
Enable	151	HHMM	(See Note 3 - p. 37)
2-Second Tone	152		
3-Second Tone	153		3-Second Tone
4-Second Tone	154		
5-Second Tone	155		
6-Second Tone	156		
7-Second Tone	157		
8-Second Tone	158		
Chime	159		

Time Trigger 6			
Zone Group	*86	Zone Numbers	No Zones
Inhibit	160		Inhibit
Enable	161	HHMM	(See Note 3 - below)
2-Second Tone	162		
3-Second Tone	163		3-Second Tone
4-Second Tone	164		
5-Second Tone	165		
6-Second Tone	166		
7-Second Tone	167		
8-Second Tone	168		
Chime	169		
Time Trigger 7			
Zone Group	*87	Zone Numbers	No Zones
Inhibit	170		Inhibit
Enable	171	HHMM	(See Note 3 - below)
2-Second Tone	172		
3-Second Tone	173		3-Second Tone
4-Second Tone	174		
5-Second Tone	175		
6-Second Tone	176		
7-Second Tone	177		
8-Second Tone	178		
Chime	179		
Time Trigger 8			
Zone Group	*88	Zone Numbers	No Zones
Inhibit	180		Inhibit
Enable	181	HHMM	(See Note 3 - below)
2-Second Tone	182		
3-Second Tone	183		3-Second Tone
4-Second Tone	184		
5-Second Tone	185		
6-Second Tone	186		
7-Second Tone	187		
8-Second Tone	188		
Chime	189		
Reset Default	999		
Setup Tone (in Program Mode Only)			
Turn On	000		
Turn Off	Hang Up		

Notes to Feature Codes

Note 1- These 2 digits represent time in 10s of seconds, i.e., "01" = 10 seconds, "02" = 20 seconds, "03" = 30 seconds, etc. Entering "00" will inhibit timer operation

Note 2 - This single-digit indicates VOX delay time in seconds, i.e., "1" = 1 second, "2" = 2 seconds, etc. Entering "0" will inhibit VOX timer operation.

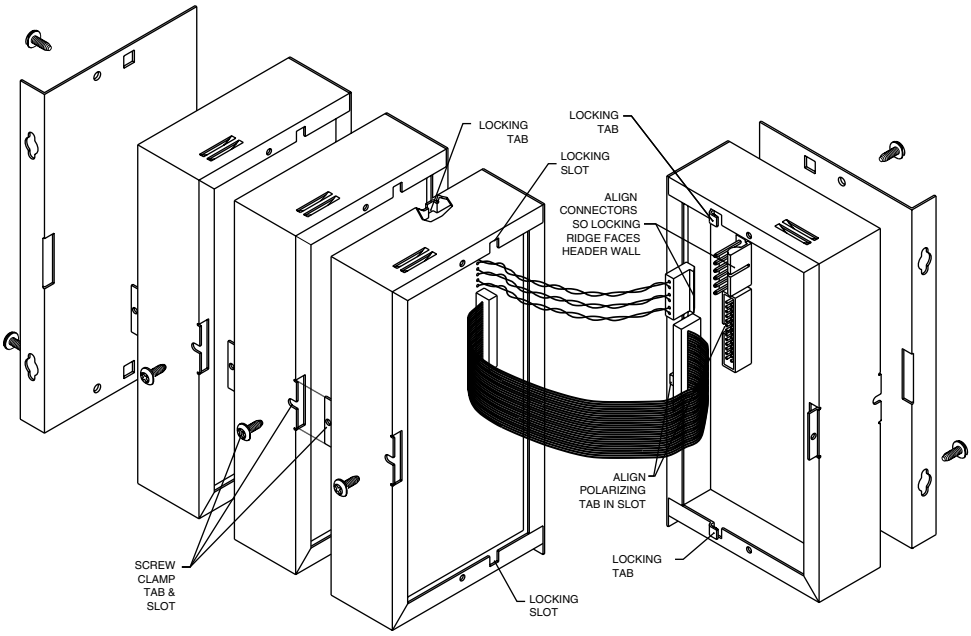
Note 3 - Entering the Feature Code without additional time data will enable feature using previously programmed time data.

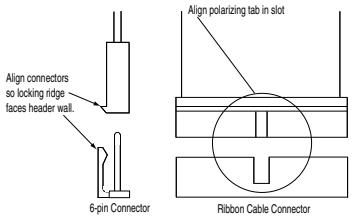
SYS-ID SWITCH SETTINGS CHART FOR ADDITIONAL SATELLITE SYSTEMS

	Zone #'s	S1	S2	S3	S4
Master	1-9	0	0	0	0
Satellite					
1	10-18	1	0	0	0
2	19-27	0	1	0	0
3	28-36	1	1	0	0
4	37-45	0	0	1	0
5	46-54	1	0	1	0
6	55-63	0	1	1	0
7	64-72	1	1	1	0
8	73-81	0	0	0	1
9	82-90	1	0	0	1
10	91-99	0	1	0	1

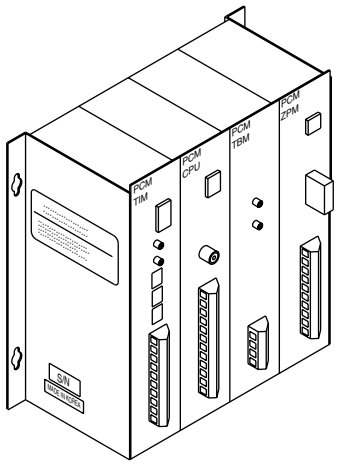
APPENDIX

Module Assembly





Completed Assembly



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